26. EXERCISES FOR CHAPTER 4

Directions: Translate each of the following statements into the language of sentential logic. Use the suggested abbreviations (capitalized words), if provided; otherwise, devise an abbreviation scheme of your own. In each case, write down what atomic statement each letter stands for, making sure it is a complete sentence. Letters should stand for positively stated sentences, not negatively stated ones; for example, the negative sentence ‘I am not hungry’ should be symbolized as ‘~H’ using ‘H’ to stand for ‘I am hungry’.

EXERCISE SET A

1. Although it is RAINING, I plan to go JOGGING this afternoon.
2. It is not RAINING, but it is still too WET to play.
3. JAY and KAY are Sophomores.
4. It is DINNER time, but I am not HUNGRY.
5. Although I am TIRED, I am not QUITTING.
6. Jay and Kay are roommates, but they hate one another.
7. Jay and Kay are Republicans, but they both hate Nixon.
8. KEEP trying, and the answer will APPEAR.
9. GIVE him an inch, and he will TAKE a mile.
10. Either I am CRAZY or I just SAW a flying saucer.
11. Either Jones is a FOOL or he is DISHONEST.
12. JAY and KAY won't both be present at graduation.
13. JAY will win, or KAY will win, but not both.
14. Either it is RAINING, or it is SUNNY and COLD.
15. It is RAINING or OVERCAST, but in any case it is not SUNNY.
16. If JONES is honest, then so is SMITH.
17. If JONES isn't a crook, then neither is SMITH.
18. Provided that I CONCENTRATE, I will not FAIL.
19. I will GRADUATE, provided I pass both LOGIC and HISTORY.
20. I will not GRADUATE if I don't pass both LOGIC and HISTORY.
EXERCISE SET B

21. Neither JAY nor KAY is able to attend the meeting.
22. Although I have been here a LONG time, I am neither TIRED nor BORED.
23. I will GRADUATE this semester only if I PASS intro logic.
24. KAY will attend the party only if JAY does not.
25. I will SUCCEED only if I WORK hard and take RISKS.
26. I will go to the BEACH this weekend, unless I am SICK.
27. Unless I GOOF off, I will not FAIL intro logic.
28. I won't GRADUATE unless I pass LOGIC and HISTORY.
29. In order to ACE intro logic, it is sufficient to get a HUNDRED on every exam.
30. In order to PASS, it is necessary to average at least FIFTY.
31. In order to become a PHYSICIAN, it is necessary to RECEIVE an M.D. and do an INTERNSHIP.
32. In order to PASS, it is both necessary and sufficient to average at least FIFTY.
33. Getting a HUNDRED on every exam is sufficient, but not necessary, for ACING intro logic.
34. TAKING all the exams is necessary, but not sufficient, for ACING intro logic.
35. In order to get into MEDICAL school, it is necessary but not sufficient to have GOOD grades and take the ADMISSIONS exam.
36. In order to be a BACHELOR it is both necessary and sufficient to be ELIGIBLE but not MARRIED.
37. In order to be ARRESTED, it is sufficient but not necessary to COMMIT a crime and GET caught.
38. If it is RAINING, I will play BASKETBALL; otherwise, I will go JOGGING.
39. If both JAY and KAY are home this weekend, we will go to thereat; otherwise, we will STAY home.
40. JONES will win the championship unless he gets INJURED, in which case SMITH will win.